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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,384	01/28/2004	Douglas C. Myers	10541-1824	3353

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EXAMINER

JULES, FRANTZ F

ART UNIT PAPER NUMBER

3617

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,384

Applicant(s)

MYERS ET AL

Examiner

Frantz F. Jules

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 9-12, 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al (2005/0063628 A1).

Wang et al disclose in fig. 2 a detachable shaft assembly of a vehicle wheel end having a shaft bell (54) and a disc rotor (44), the detachable half shaft (12) comprising a preloaded bearing assembly having an inner surface (36, 38) formed through inboard and outboard ends thereof, and detachable body (12) having an polygonal inboard interface (B or 76) at an inboard end as shown in figs. 8-19 and an outboard interface at an outboard end which integrally connects the shaft with the disc rotor at A, the inboard interface being configured for connecting to the shaft bell as disclosed in col 2, lines 49-62 and the outboard interface being configured for connecting to the disc rotor, the detachable body having a bearing receiving portion defined by a stepped boss constituted by the stepped reduction of the diameter of the shaft 12 at location C and a roll formed face constituted by the raised end section (D or 14) of the shaft, the bearing receiving portion radially receiving the inner surface (36, 38) of the preloaded bearing assembly, the stepped boss and the roll formed face engaging the bearing assembly at the inboard and outboard

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ends to maintain the preload thereon when the detachable half shaft assembly is detached from the shaft bell or the disc rotor, see col 1, lines 5-10 and the marked-up fig. 2.

The preload bearing assembly comprises an outer race including inner wall formed (30) therethrough having an inboard outer raceway and an outboard outer raceway formed thereon, an outboard inner race (38) disposed adjacent the outboard end of the detachable body, the outboard inner race having a first raceway formed thereon and configured to cooperate with the with the outboard outer raceway of the outer race to house bearings, the outboard inner race having an outboard inner surface; and an inboard inner race (36) disposed adjacent the inboard end, the inboard inner race having a second raceway formed thereon and configured to cooperate with the inboard outer raceway of the outer race to house bearings as shown in the drawings, the inboard inner race having an inboard inner surface in accordance with claims 2, 9.

The inboard interface of the being a polygon assembly as disclosed in col 2, lines 61-62 and as shown in figs. 2-29 in accordance with claims 5, 12, 14.

The stepped boss (C) of the detachable body detachable body being formed at one of the inboard end and the outboard end and wherein the rolled formed face is formed adjacent the other of the inboard end of the outboard end in accordance with claims 10-11.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 6, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (US 2005/0063628 A1).

Regarding using an interface which is a 6-8 or an 18-sided polygon surface as recited in claims 6, 13 and 15, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wang et al to include the use of a 6-8 or an 18-sided polygon surface in his advantageous system, as shaft coupling is a common and everyday occurrence throughout the wheel end assembly design art and the specific use of a 6-8 or an 18-sided polygon would have been an obvious matter of design preference depending upon such factors as the loading imposed on the axle, the yield strength of the shaft material and the shaft bell material; the ordinarily skilled artisan choosing the best stress profile corresponding to a particular loading imposed on the axle which would most optimize the cost and performance of the device for a particular application at hand, based upon the above noted common design criteria.

Response to Arguments

5. Applicant's arguments filed 01/18/2006 have been fully considered but they are moot in view of the new grounds of rejection. Also, applicant's argument filed 08/31/2005 have fully considered but are not persuasive.

A. Summary of applicant's argument.

In the reply filed 08/31/2005, applicant traversed the rejection of the claims over the Wang et al for the following reasons:

1. Wang et al fail to disclose "a bearing receiving portion with both a stepped boss and a roll formed face to engage the bearing assembly to maintain the preload thereon when detached".

B. Response to applicant's argument.

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In response to applicant's argument No. 1, it's factual that the reference of record Wang et al discloses a bearing receiving portion with both a stepped boss and a roll formed face to engage the bearing assembly to maintain the preload thereon when detached". The bearing receiving portion as shown in fig. 2 of the detachable half shaft (12) is shown to receive the outboard inner race (38) and the inboard inner race (36) of the preloaded wheel bearing (26). The preloaded bearing is located by a stepped boss (C) on the outer end which is seen as the reduced diameter section of shaft 12 as it reduces in diameter from the base of the rotor shaft connection. Also, the bearing receiving portion of the shaft comprises a roll formed (D or 14) face to engage the bearing assembly to maintain the preload thereon when detached. This has been described on page 1, lines 5-10 of the specification.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frantz F. Jules whose telephone number is (703) 272-6681. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph S. Morano can be reached on (703) 272-6684. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frantz F. Jules
Primary Examiner
Art Unit 3617

FFJ

March 24, 2006

FRANTZ F. JULES
PRIMARY EXAMINER



